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10/727,709	12/04/2003	Zhenan Bao	BAO 39	6929

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EXAMINER

LOUIE, WAI SING

ART UNIT	PAPER NUMBER
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2814

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/727,709

Filing Date: December 04, 2003

Appellant(s): BAO, ZHENAN

Ronald J. Corbett
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/27/2006 appealing from the Office action mailed 11/29/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6777529	Ong et al.	8-2004
6713389	Speakman	3-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Ong et al. (US 6,777,529).

With regard to claim 1, Ong et al. disclose a polythiophene device, including organic field effect transistor, OFET, (col. 13, line 55 to col. 19, line 67 and fig. 1), comprising:

- a substrate 16 having a surface (col. 13, line 60 and fig. 1);
- an organic field effect transistor 10 located adjacent the surface of the elastic substrate 16 (col. 14, lines 7-11 and lines 32-37), the transistor 10 comprising a gate 18, a channel 12, a source electrode 20, and a drain electrode 22 (fig. 1), where the channel 12 comprises a layer of organic molecules, polythiophene (col. 14, line 23), with conjugated multiple bonds (col. 1, lines 44-46). It is noted that the organic molecules layer 12 is made of polythiophene, which is the same organic molecules layer as disclosed in the instant specification, and is made by multiple stacks of conjugated bonds (col. 11, lines 10-11). Therefore, the organic

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molecules layer 12 is densified and has axes of the molecules being oriented substantially normal to the surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong et al. (US 6,777,529).

With regard to claims 2-5 and 8-10, Ong et al. do not disclose:

- the surface density of the organic molecules is about 7 molecules/nm²;
- the average separation between organic molecules is less than 3.8 Å;
- the polarization ratio of the organic molecules is greater than 1;
- coplanar aromatic groups, linear organic molecules, and covalently bonded to the surface.

However, where the claimed and the prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

With regard to claim 11, Ong et al. disclose the mobility of the device is 2.3×10^{-3} cm²/V.sec (col. 17, line 32). Since the applicant has not established the criticality of the mobility

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stated and since these mobilities are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device. Where patentability is said to be based upon particular chosen dimension or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong et al. (US 6,777,529) in view of Speakman (US 6,713,389).

With regard to claims 6-7, Ong et al. do not disclose the substrate 16 comprises an elastomer has a glass transition temperature of less than 30°C and the elastomer is polysiloxane. However, Speakman discloses a gate dielectric layer is polysiloxane (Speakman col. 3, lines 29-32) and the device is mechanically flexible (elastomer) at low glass transition temperature (Speakman col. 3, line 66 to col. 4, line 5). Speakman teaches the polysiloxane material could be applied by ink jet printing technique leading to a cheaper manufacturing cost (Speakman col. 7, lines 16-25). Therefore, it would have been obvious to one of ordinary skill in the art to modify Ong's device with the teaching of Speakman to provide a elastomer gate dielectric layer of polysiloxane in order to apply the layer with ink jet printing technique leading to a cheaper manufacturing cost.

(10) Response to Argument

Applicant's arguments filed 8/3/05 have been fully considered but they are not persuasive.

- Applicant argues that Ong et al. do not teach or suggest a densified layer of organic molecules as cited by claim 1. However, Ong et al. disclose the polythiophene channel layer 12 has an average molecular weight of 2,000 to 100,000 (col. 4, lines 15-46 and col. 14, line 23). It is noted that the organic molecules layer 12 is made of polythiophene, which is the same organic molecules layer as disclosed in the instant specification, and is made by multiple stacks of conjugated bonds (col. 11, lines 10-11). Therefore, the same kind of polythiophene molecule should have the same molecular orientation, which is substantially normal to the surface of the substrate, as claimed in the invention.

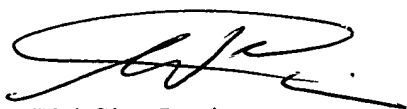
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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Wai-Sing Louie

June 8, 2006.

Conferees:

Mack Ricky, SPE

Wael Fahmy, SPE

Wai-Sing Louie

